



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,241	04/02/2004	Eivind Stenersen	758.1524USU1	3053

7590

12/20/2005

Merchant & Gould P.C.

P.O. Box 2903

Minneapolis, MN 55402-0903

EXAMINER

CHIESA, RICHARD L

ART UNIT

PAPER NUMBER

1724

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/817,241

Applicant(s)

STENERSEN ET AL.

Examiner

Richard L. Chiesa

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/2/04 & 12/6/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Oath/Declaration***

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because there is apparently no date next to the signature of the last inventor (Mark Alan Gogins).

### ***Drawings***

2. The drawings filed on April 2, 2004 are accepted by the examiner.

### ***Specification***

3. The disclosure is objected to because of the following informalities: (A) The word “mean” (page 2, line 16) should apparently be changed to --means--. (B) The word “appreciable” (page 3, line 28) should apparently be changed to --appreciably--. (C) The word “additional” (page 9, line 7) should apparently be changed to --additionally--. (D) The word “but” (page 9, line 19) should apparently be deleted. (E) The word “filtrations” (page 11, line 23) should apparently be changed to --filtration--. (F) The word “obtained” (page 11, line 27) should apparently be changed to --obtain--. (G) The word “as” (page 15, line 5) should apparently be deleted. Appropriate correction is required.

Art Unit: 1724

***Claim Rejections - 35 USC § 102/103***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicants are advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 16 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Great Britain Patent No. 2362115 to Ma. Ma (note Figure 1) shows an engine 10, engine exhaust conduit 12, acoustic cavity system 14, and exhaust outlet 16

Art Unit: 1724

as claimed (35 USC 102b). It would appear that Ma may not actually refer to the system 14 as an acoustic cavity. However, Ma does describe the production of acoustic pulses within the chamber 14 (note page 4, line 8 to page 5, line 10) for causing the separation of particulates from the gas stream. Consequently, it is inherent or at least would have been readily obvious to one having ordinary skill in the art (35 USC 103a) that the Ma's chamber 14 is an acoustic cavity.

8. Claims 1-15, and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma in view of U.S. Patent No. 5,827,350 to Magill et al. Ma, as described above in paragraph 7, discloses a method and apparatus for removing particulates from an engine exhaust substantially as claimed. Apparently, Ma may not explicitly disclose the presence of a gas stream separator downstream of a plurality of parallel acoustic cavities. However, Magill et al (note col. 2, line 23 to col. 3, line 20) teach the well-known use of gas stream separators 12, 14, 36 downstream of a plurality of parallel acoustic cavities 35 in a mist and particulate removal process and apparatus for the purpose of ensuring the removal of very small particles (note col. 1, lines 45-60). Therefore, it would have been obvious to one of ordinary skill in the art to employ gas stream separators downstream of a plurality of parallel acoustic cavities in the Ma particulate removal process and apparatus in order to facilitate small particle removal as taught by Magill et al.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ma in view of PCT Publication No. WO 87/04641 to Wessling. Ma, as described above in paragraph 7, discloses an engine exhaust acoustic particulate removal apparatus substantially as claimed. It would appear that Ma may not explicitly disclose a NO<sub>x</sub> reduction device. However, Ma (note

Art Unit: 1724

page 4, lines 21-30) does disclose the use of a catalytic converter which presumably will remove non-solid contaminants such as sulfur dioxide and nitrogen dioxide (note page 2, lines 11-15). In any case, Wessling (note page 2, line 32 to page 3, line 20) teaches the well-known use of a NO<sub>x</sub> reduction device in an engine exhaust acoustic particulate removal apparatus for the purpose of enhancing air purification (note abstract) and for this same reason it would have been obvious to one of ordinary skill in the art to employ such an expedient in the Ma particulate removal apparatus.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. These references have been cited as art of interest to show other acoustic systems and/or fluid separators.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard L. Chiesa whose telephone number is (571) 272-1154.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane S. Smith, can be reached at (571) 272-1166.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 1700 receptionist whose telephone number is (571) 272-1700.

Facsimile correspondence must be transmitted through (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/817,241

Page 6

Art Unit: 1724

Richard L. Chiesa  
December 14, 2005

*Richard L. Chiesa*

**RICHARD L. CHIESA  
PRIMARY EXAMINER  
ART UNIT 1724**

*Dec. 14, 2005*